

Fortuitous Diagnosis of Infective Endocarditis on CIV: Interest of Echocardiography and Prophylaxis

Ousmane Diawara^{1*}, F. Ekoba¹, M. Camara¹, T. Camara¹, M. El Jamili¹

¹Service de Cardiologie, CHU Mohammed VI Marrakech, Morocco

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*Corresponding author: Ousmane Diawara

Service de Cardiologie, CHU Mohammed VI Marrakech, Morocco

Abstract

Case Report

Infective endocarditis can occur on a healthy or pathological heart. Among the heart diseases at risk are congenital heart diseases whose IVC is the most common. We present the case of a 26-year-old patient referred for cardiovascular evaluation by the ENT department as part of the pre-anesthetic assessment of a tonsillectomy, in whom echocardiography found endocarditis on restrictive perimembranous IVC. She had a history of recurrent angina since the age of 11. IVC AEs are the most common AEs on congenital heart disease. Their clinical presentation can be atypical, hence the essential role of echocardiography. Prevention in these cases requires optimal oral and skin hygiene and not antibiotic prophylaxis.

Keywords: IVC, Infective endocarditis, prophylaxis des IE recommandation ESC 2015.

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INTRODUCTION

Infectious endocarditis (IE) is an infectious attack of the endocardium causing mainly valvular damage, responsible for mortality and significant morbidity. It can occur on a healthy or pathological heart. Among the heart diseases at risk, we find congenital heart diseases of which CIV is the most frequent.

PATIENT AND OBSERVATION

This is a 26-year-old patient referred for cardiovascular evaluation by the ENT department as part of the pre-anaesthetic assessment of a tonsillectomy.

She had a history of recurrent angina since the age of 11.

The general examination on admission found a patient with fever at 38.5°C, BP at 112/75 mmHg, HR at 90 bpm and in good general condition. Cardiac auscultation found a systolic murmur in the radius of

the wheel. The examination of the ENT sphere also revealed pseudomembranous angina with poor oral status. On the biological assessment, there was a frank inflammatory syndrome (CRP: 202mg/l, VS: 110 mm), with hyperleukocytosis. Negative viral serologies. Blood cultures were positive for oral streptococcus (*S.mitis*), sterile ECBU with negative 24-hour proteinuria. A transthoracic echocardiography (TTE) found a LV of normal size and systolic function with the presence of a restrictive peri membranous interventricular communication (VSD) measuring 3 mm and a large 17 mm mobile vegetation grafted on the upper edge of the VSD (Figure 1, Figure 2). CT scan (CT) thoraco-abdominal found only homogeneous hepatosplenomegaly. Cerebral CT, sinus X-ray (Blondeau incidence) and fundus examination were without abnormalities. The treatment focused on the administration of CG3 2g/d IV in a single dose) for 6 weeks and gentamycin (4 mg/kg/d IV as a single dose) for 2 weeks. The evolution was favorable with disappearance of fever, normalization of CRP and this VS, disappearance of hypereosinophilia.

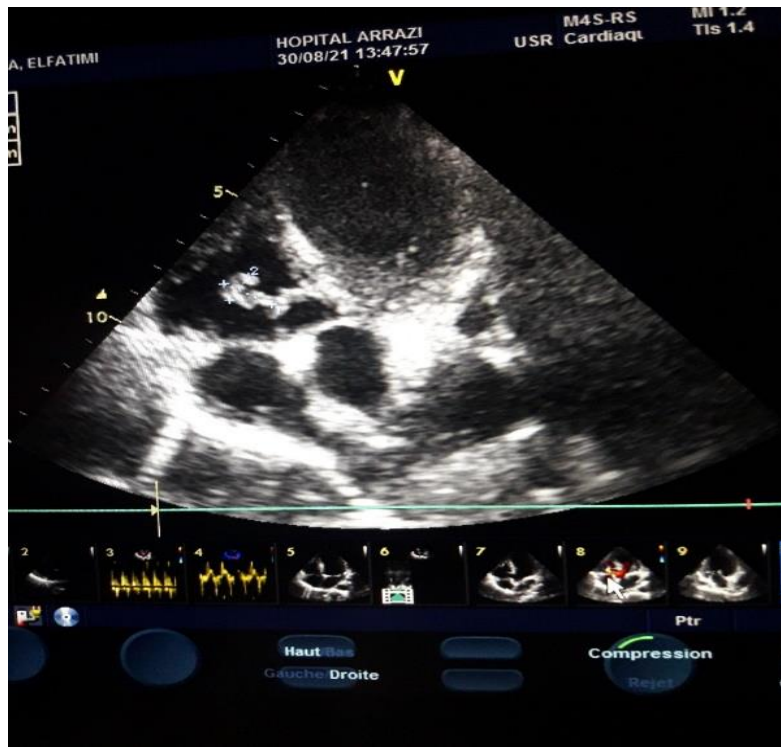


Figure 1: Apical incidence 4 cavities showing a large vegetation of 17mm inserted on the upper bank of the CIV

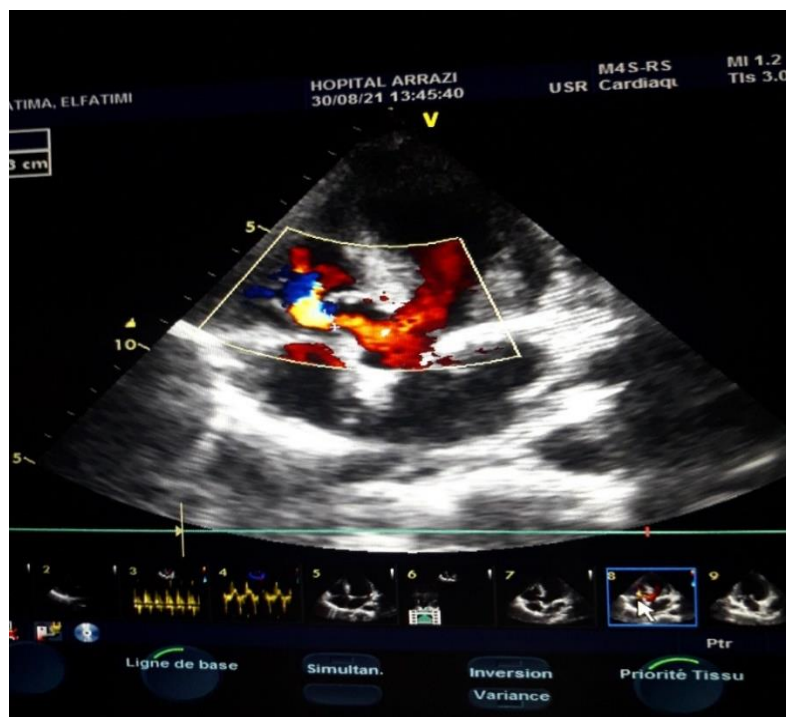


Figure 2: 4-chamber view showing a left-right interventricular shunt on color Doppler

DISCUSSION

Infectious endocarditis is a rare pathology with an annual incidence of approximately 10 cases/100,000 inhabitants. It is a pathology with a poor prognosis, despite diagnostic and therapeutic advances, with a mortality rate of around 20% [3]. It can occur on a healthy heart, but most often it is a pathological heart [2]; and although IE due to rheumatic valvular disease

has always occupied first place in developing countries [1], the profile of patients with IE has undergone a notable change in developed countries, IE due to rheumatic or degenerative valvulopathy becoming less and less frequent in favor of AEs on congenital heart disease (CC) [4]. “Corrected” congenital heart disease, non-operated or having had palliation are affected by bacterial grafting. Surgical repair is supposed to reduce or even eliminate the risk; this is only true if no residual

lesion persists. The repair of complex heart disease involves the placement of valvular prostheses, prosthetic tubes which constitute targets at risk of infection, or else allow valvular lesions to persist or other shunts with a lower risk, certainly lower, but not zero [7]. Ventricular septal defect (VSD) is the second congenital heart disease in terms of frequency after bicuspid aortic valve, but is the first in terms of IE. Various studies and registries have found that among congenital heart disease AEs, CIV comes first; carrier patients are seven times more likely to have IE than the general population [4-6]. The clinical presentation of IE is very variable. Fever is almost always present and represents the main mode of revelation. A table of sometimes severe heart failure can be revealing or complicate the evolution. About a third of patients will present with one or more emboli, which must be sought by an exhaustive extension assessment.

Echocardiography, whether transthoracic (ETT) or trans esophageal (TEE), is an essential examination in the management and follow-up of any IE. It should be performed as soon as an AE is suspected. TEE is recommended if the patient is known to have a valve prosthesis or intracardiac material, if the ETT is negative with a strong clinical suspicion of IE, especially if the ETT is suboptimal, finally it should be done before any AE to rule out a local complication [2]. However, ultrasound diagnosis can be defeated in complex heart disease involving valvular abnormalities and multiple shunts: nearly 55% of infective endocarditis on complex heart disease have no lesions, obvious echocardiograms. Indeed, infectious lesions are sometimes indistinguishable from pre-existing abnormalities or are invisible if located on palliative systemic-pulmonary shunts [7]. Generally, these difficulties do not arise in AEs on CIV for which the echocardiographer must also specify the location, severity, size and number of CIVs, but also assess the volume overload of the LV and the pulmonary arterial pressures [6].

The last point we would like to discuss is the prevention of IE in case of CIV. Indeed, according to the latest European recommendations published in 2015, antibiotic prophylaxis is only recommended for high-risk heart disease. CIV is not included in the case of high-risk dental procedures. The National Institute for Health and Care Excellence (NICE 2008) goes even further and hardly recommends antibiotic prophylaxis whatever the cardiac predisposition and the procedure. learned societies put forward the following reasons to explain the restrictions on antibiotic prophylaxis: bacteremia caused by daily activities such as brushing the teeth last significantly longer (5,370 minutes/month) than those due to dental extraction (30 min), case-control studies have not shown an association between so-called invasive dental procedures and the occurrence of IE, the effectiveness of antibiotic prophylaxis on bacteremia and the occurrence of IE has only been

proven in the animals while this remains a controversial issue in humans, finally the administration of antibiotic therapy exposes to the risk of anaphylaxis and emergence of resistant strains [2, 3]. But one might wonder if these recommendations can they really be extrapolated in developing countries? With different populations? The lack of periprocedural asepsis in certain regions? Etc. The Adult Expert Review Group for the hospital level belonging to the National Essential Drug List Committee in South Africa recommends Oslerian antibiotic prophylaxis for high-risk procedures even in patients with acquired valve disease [3]. The definitive answer to the real interest of antibiotic prophylaxis in the prevention of IE requires randomized controlled studies which will probably never see the light of day given the very large number of subjects to be included. In our opinion, it is reasonable to apply the recommendations of international learned societies in a balanced and individualized way, taking into consideration the socio-economic context, expertise in dentistry but also the microbiological environment of each region; Oslerian antibiotic prophylaxis in case of CIV having no place. A principle on which all learned societies and study groups agree is the need for skin and especially oral hygiene, often neglected by doctors, in all patients with heart disease at risk with a consultation. stomatological and dental bi-annual for the high-risk group, annual for the others [1-3].

CONCLUSION

IE on CIV are the most frequent IE on congenital heart disease. Their clinical presentation can be atypical, hence the essential role of echocardiography which allows, in addition to the positive diagnosis, the search for complications and the follow-up but also the study of CIV. Prevention in these cases requires optimal oral and skin hygiene and not antibiotic prophylaxis. Thus, as soon as the CIV is discovered, a consultation with a stomatologist and a dentist must be scheduled and the patient must be educated regarding the interest of taking care of his oral condition, even if it means giving carrier patients heart diseases at risk of IE, in particular CIV, toothbrushes and toothpaste at regular intervals in the most underprivileged environments.

Patient Consent: The patient has given consent.

Conflicts of Interest: The authors declare no conflicts of interest.

Author Contributions

All authors contributed to the drafting of the manuscript, all authors read and approved the final version of the manuscript.

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